

January 15 to January 21, 2012 (Week 03)

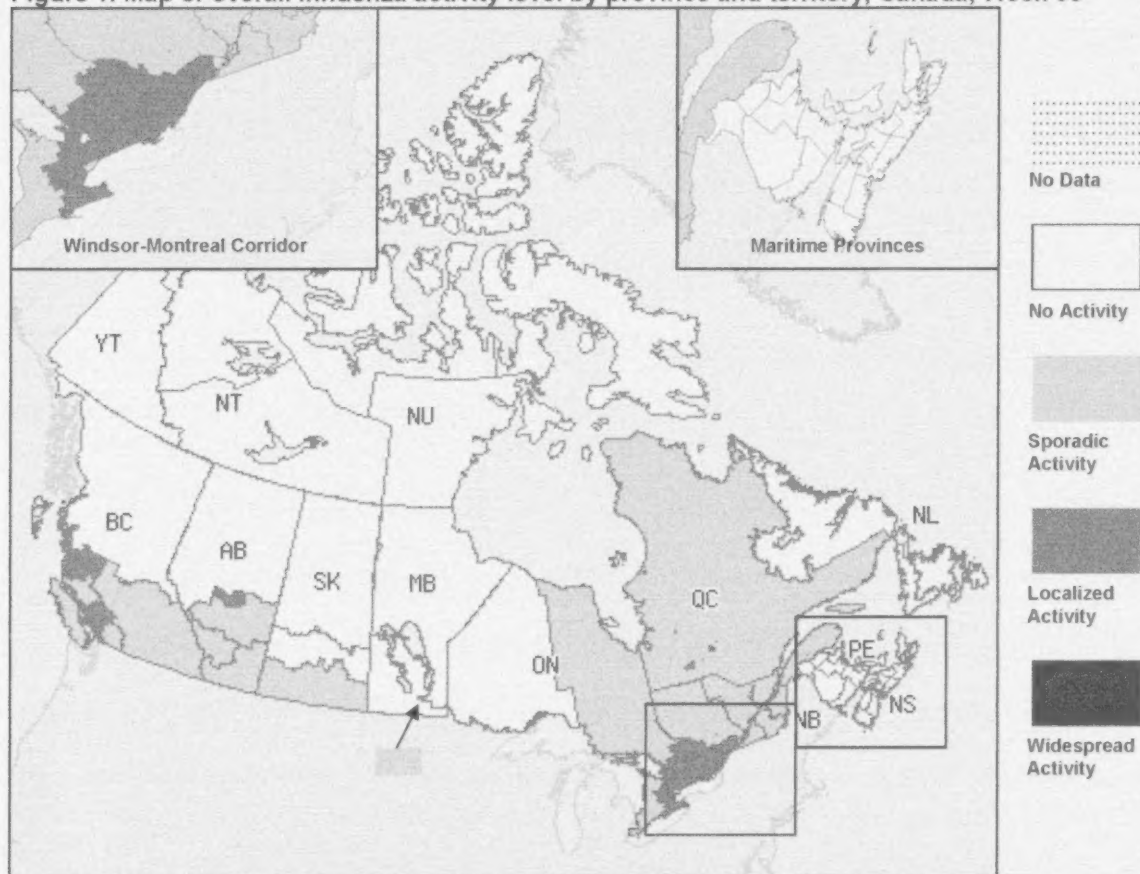
## Overall Influenza Summary

- Influenza activity remains similar to the previous week; activity remains low in certain areas (i.e. Atlantic region and the Territories)
- Five regions reported localized influenza activity and 17 regions reported sporadic influenza activity
- Seven outbreaks of influenza were reported this week (4 in LTCFs, 1 in a hospital and 2 other)
- In week 03, 127 laboratory detections of influenza were reported (68 A/H3, 9 A(H1N1)pdm09, 18 A unsubtype and 32 B)
- Eleven influenza-associated hospitalizations were reported this week (1 paediatric and 10 adult)
- The national ILI consultation rate declined this week compared to previous weeks but remains within expected levels for this time of year.

## Influenza Activity (geographic spread) and Outbreaks

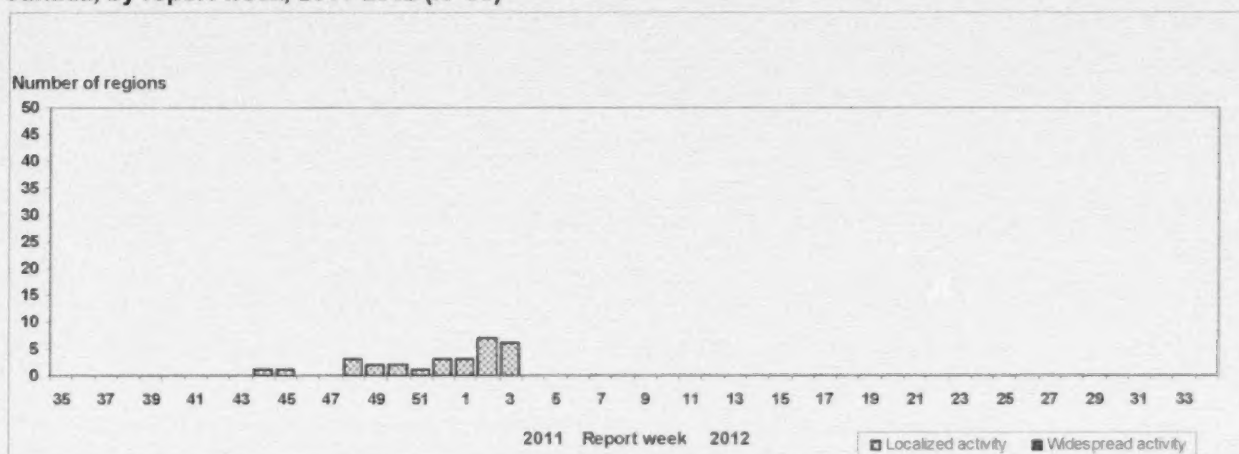
In week 03, five surveillance regions (within BC, AB & ON) reported localized activity and 17 regions (within BC, AB, SK, MB, ON & QC) reported sporadic influenza activity (see Figure 1). Seven outbreaks of influenza were reported this week: 4 in long-term care facilities (1 in BC & 3 in ON), 1 in a hospital (AB) and 2 others (AB) (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 03



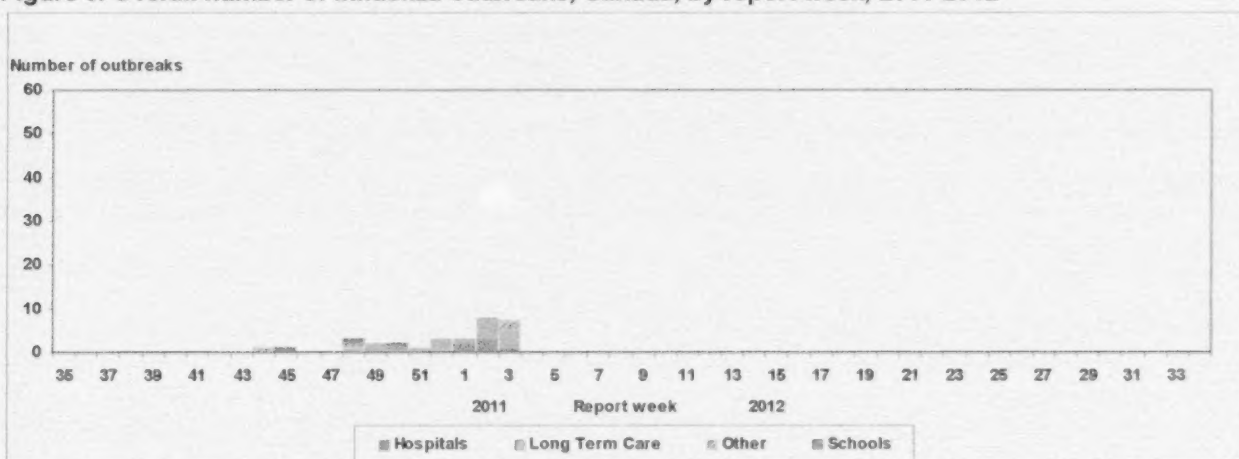
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

**Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2011-2012 (N=56)**



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

**Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2011-2012**



## Influenza and Other Respiratory Virus Detections

In week 03, the proportion of positive influenza tests remained similar to the previous week (3.3% or 127/3,854) (Figure 4 & 5). Although the majority of influenza virus detections since the start of the season were for influenza A viruses, the number of influenza B virus detections have been increasing over recent weeks.

The proportion of influenza virus detections by type/subtype this season to date is as follows: 78.6% influenza A (74% - A(H3); 8% - A(H1N1)pdm09; 18% - unsubtyped) and 21.4% influenza B (Table 1).

Detailed information on age and type/subtype were received on 642 cases this season to date (Table 2). The proportions of cases by age group are as follows: 20.9% were < 5 years; 10.1% were between 5-19 years; 24.9% were between 20-44 years; 14.3% were between 45-64 years of age; and 29.8% were ≥ 65 years.

In week 03, the proportion of tests positive for RSV increased slightly from the previous week (18.3%) and remains the most prevalent among the other respiratory viruses being detected. The highest percent positives for RSV were reported in NS, ON & QC (range 21%-26%). The proportion of positive tests for the other respiratory viruses declined from the previous week (rhinovirus-5.7%; parainfluenza-2.8%; adenovirus-3.3%; hMPV-5.4%; coronavirus-5.1%) (Figure 5). For more details, see the weekly [Respiratory Virus Detections in Canada report](#).

**Table 1. Weekly & Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2011-2012**

Reporting provinces	January 15 to January 21, 2012						Cumulative (August 28, 2011 to January 21, 2012)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	21	0	21	0	0	0	200	0	199	1	0	11
AB	31	0	27	0	4	1	123	0	114	2	7	13
SK	11	0	11	0	0	0	64	0	58	0	6	1
MB	3	0	2	0	1	1	5	0	2	0	3	1
ON	15	0	6	8	1	14	85	0	34	39	12	58
QC	13	0	0	1	12	9	78	0	3	4	71	43
NB	0	0	0	0	0	0	0	0	0	0	0	1
NS	0	0	0	0	0	0	0	0	0	0	0	0
PE	0	0	0	0	0	0	0	0	0	0	0	0
NL	1	0	1	0	0	7	1	0	1	0	0	23
Canada	95	0	68	9	18	32	556	0	411	46	99	151

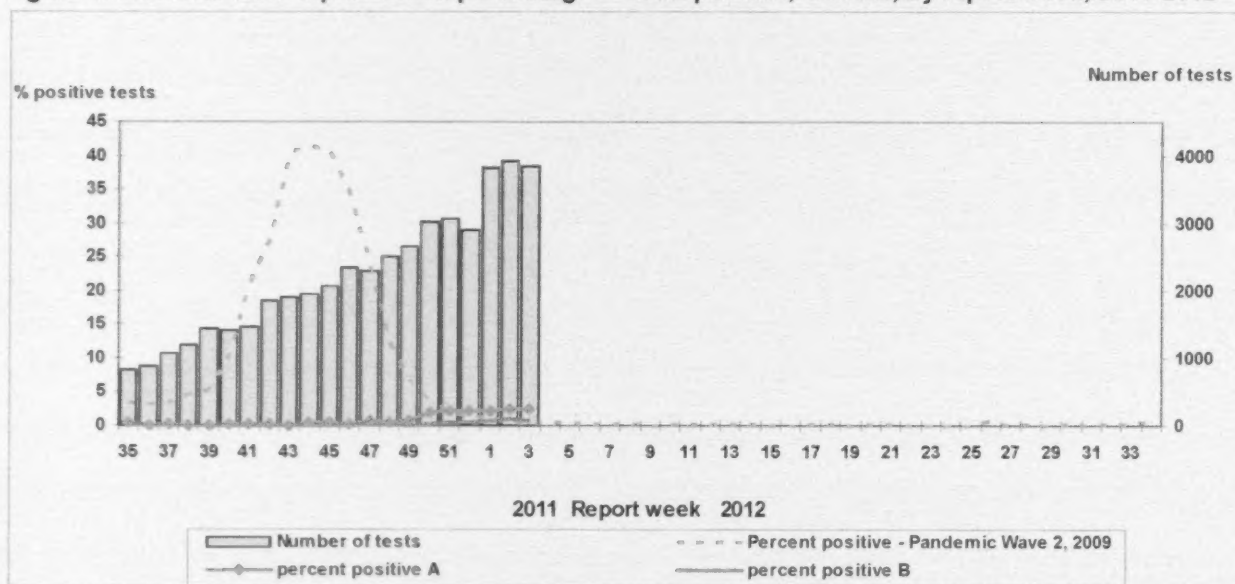
\*Unsubtyped: The specimen was typed as influenza A, but no test for subtyping was performed. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

**Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2011-2012\***

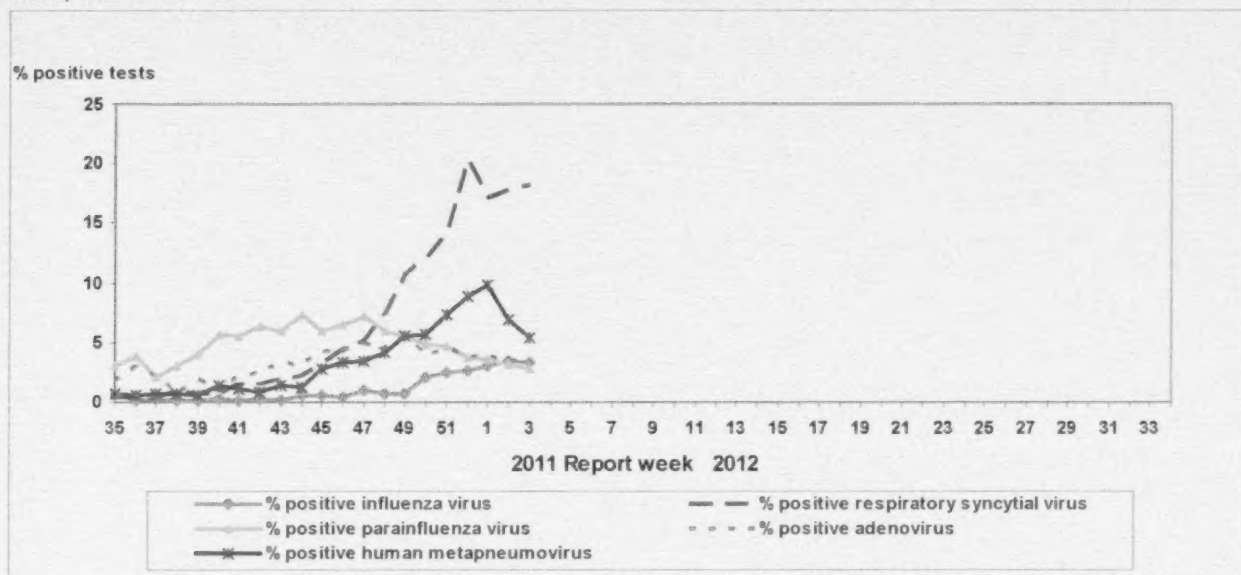
Age groups	Weekly (Jan. 15 to Jan. 21, 2012)					Cumulative (Aug. 28, 2011 to Jan. 21, 2012)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total
<5	11	1	5	5	2	100	23	57	20	34
5-19	6	0	6	0	1	55	2	50	3	10
20-44	14	0	12	2	5	136	8	106	22	24
45-64	12	0	7	5	3	78	3	62	13	14
65+	24	0	18	6	2	168	4	138	26	23
Unknown	0	0	0	0	0	0	0	0	0	0
Total	67	1	48	18	13	537	40	413	84	105

\*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

**Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2011-2012**



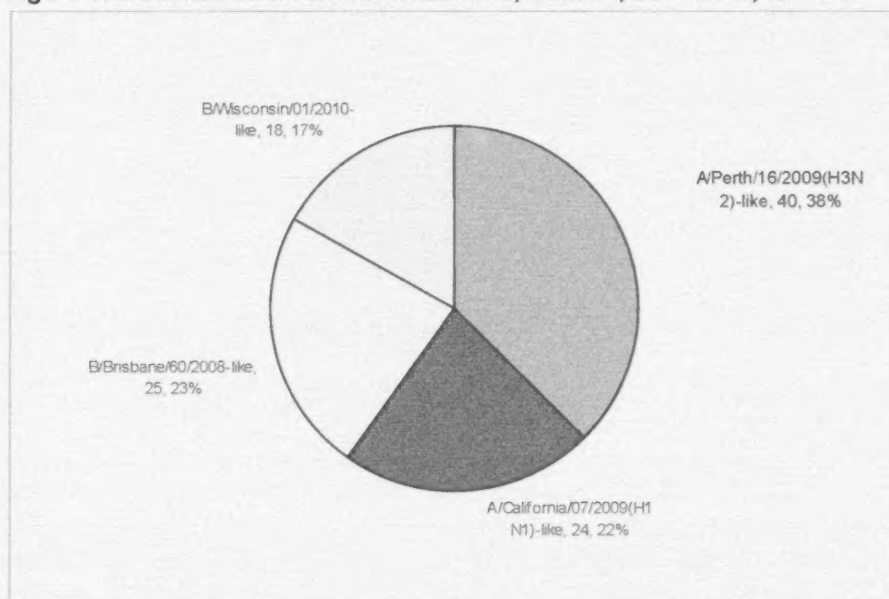
**Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2011-2012**



## Influenza Strain Characterizations

Since the start of the season, the National Microbiology Laboratory (NML) has antigenically characterized 107 influenza viruses (40 A/H3N2, 24 A/H1N1 and 43 B). All 40 A/H3N2 viruses (from BC, AB, SK & ON) are antigenically related to A/Perth/16/2009. All 24 A/H1N1 viruses (from QC & ON) are antigenically related to A/California/07/2009. Twenty-five of the 43 influenza B viruses characterized (from BC, AB, ON, QC & NL) are antigenically related to the vaccine strain B/Brisbane/60/2008 (Victoria lineage). The remaining 18 influenza B viruses (from BC, AB, ON, QC & NB) are antigenically related to the reference virus B/Wisconsin/01/2010-like, which belongs to the Yamagata lineage. (Figure 6)

**Figure 6. Influenza strain characterizations, Canada, 2011-2012, N = 107**



Note: The recommended components for the 2011-2012 Northern Hemisphere influenza vaccine include: A/Perth/16/2009 (H3N2), A/California/7/2009 (H1N1) and B/Brisbane/60/2008.



## Antiviral Resistance

Since the beginning of the season, NML has tested 101 influenza viruses (37 A/H3N2, 22 A/H1N1 and 42 B) for resistance to oseltamivir (by phenotypic assay and/or sequencing) and for resistance to zanamivir (by phenotypic assay) and it was found that all 101 viruses were susceptible to oseltamivir and zanamivir. A total of 71 influenza A viruses (51 H3N2 and 20 H1N1) were tested for amantadine resistance and all 71 were found to be resistant. (Table 3)

**Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2011-2012**

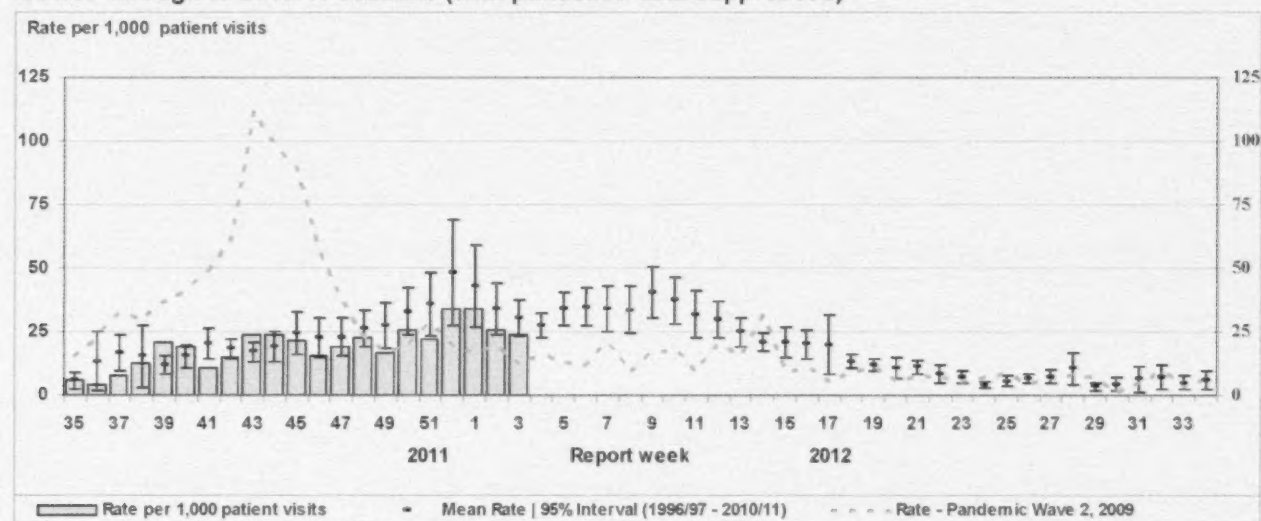
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	37	0	37	0	51	51 (100%)
A (H1N1)	22	0	22	0	20	20 (100%)
B	42	0	42	0	NA*	NA*
<b>TOTAL</b>	<b>101</b>	<b>0</b>	<b>101</b>	<b>0</b>	<b>71</b>	<b>71 (100%)</b>

\* NA – not applicable

## Influenza-like Illness (ILI) Consultation Rate

The national ILI consultation rate declined slightly to 23.9 ILI consultations per 1,000 patient visits in week 03 and is within the expected levels for this time of year (Figure 7). The highest consultation rates this week were observed in children under 5 (61.2/1,000 visits) and those 5 to 19 years old (37.7/1,000).

**Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2011-2012 compared to 1996/97 through to 2010/11 seasons (with pandemic data suppressed)**



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

## Severe Illness Surveillance

### Paediatric Influenza Hospitalizations and Deaths

In week 03, one new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalization was reported through the Immunization Monitoring Program Active (IMPACT) network from AB due to influenza A infection.

To date this season, 35 cases have been reported (from BC, AB, SK, ON & QC); 24 (68.6%) were due to influenza A and 11 (31.4%) were due to influenza B. The proportion of cases by age group is as follows: 20.0% among infants <6 months of age; 20.0% among children 6-23 months of age; 40.0% were between 2-4 years; 8.6% were between 5-9 years; and 11.4% were between 10-16 years.

### Adult Influenza Hospitalizations and Deaths

In week 03, 10 new laboratory-confirmed influenza-associated adult hospitalizations were reported: 7 in ON, 2 in AB and 1 in MB.

To date this season, 51 influenza-associated adult hospitalizations have been reported from three provinces (AB, MB & ON). The proportion of cases by age group is as follows: 27.5% were in those 20-44 years of age; 25.5% were in those 45-64 years of age and 47.0% were in those  $\geq$  65 years.

Note: Influenza-associated adult hospitalizations are not reported to PHAC by the following Provinces: BC, QC, & NB. Only hospitalizations that require intensive medical care are reported by SK. ICU admissions are not reported in ON.

## International Influenza Updates

**WHO:** No new updates have been reported by the WHO since January 20, 2012.

[World Health Organization influenza update](#)

**United States:** In week 02, the CDC reported that 3.7% (138/3,771) of influenza tests were positive. Since October 1, 2011, the CDC characterized 197 influenza viruses: 20 A/H1N1, 160 A/H3N2 and 17 B. Nineteen of the A/H1N1 viruses were characterized as A/California/7/2009-like and 1 showed reduced titers with antiserum produced against A/California/7/2009. Of the 160 influenza A/H3N2 viruses that were characterized, 158 were A/Perth/16/2009-like and 2 showed reduced titers with antiserum produced against A/Perth/16/2009. Eight influenza B viruses were characterized as B/Brisbane/60/2008-like (B/Victoria lineage) and 9 B viruses belong to the B/Yamagata lineage. The proportion of outpatient visits for ILI was 1.2%, which is below the national baseline. Regional influenza activity was reported by one state (Colorado), eight states reported localized influenza activity (California, Kansas, Kentucky, Maine, Massachusetts, New Hampshire, Texas and Virginia) while the rest reported either sporadic or no activity.

[Centers for Disease Control and Prevention seasonal influenza report](#)

**Europe:** Influenza activity has increased consistently over the past several weeks in the European Region, but influenza detections remain low compared to the same period of the 2010-2011 season. The percentage of sentinel samples that tested positive for influenza in week 03 was 29% (of which 95% were for influenza A). Influenza A and B viruses are co-circulating in the Region, with the vast majority of detections in both outpatient clinics and hospitals being A(H3N2). Since week 40, 56 influenza viruses have been characterized antigenically: 2 were A/California/7/2009 (H1N1)-like; 46 were A/Perth/16/2009 (H3N2)-like; 2 were B/Florida/4/2006-like (B/Yamagata/16/88 lineage), 2 were B/Bangladesh/3333/2007-like (B/Yamagata/16/88 lineage) and 4 were B/Brisbane/60/2008-like (B/Victoria/2/87 lineage).

[EuroFlu weekly electronic bulletin](#)

## Human Avian Influenza Updates

Since 20 January 2012, two new cases of human A/H5N1 avian influenza infection were reported by the WHO: 1 from Vietnam and another from China; both fatal. The case from Vietnam was reportedly exposed to ducks; while investigation into the source of infection for the case from China is ongoing.

[WHO Avian influenza situation updates](#)

**FluWatch reports include data and information from the following sources:** laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

**ILI definition for the 2011-2012 season**

**ILI in the general population:** Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

**Definitions of ILI/Influenza outbreaks for the 2011-2012 season**

**Schools:** Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

**Hospitals and residential institutions:** two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

**Other settings:** two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. workplace, closed communities.

**Influenza Activity Levels Definition for the 2011-2012 season**

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI\* and

(2) lab confirmed influenza detection(s) together with

(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region†**

4 = Widespread: (1) evidence of increased ILI\* and

(2) lab confirmed influenza detection(s) together with

(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **greater than or equal to 50% of the influenza surveillance region†**

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

\* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

*We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.*

This report is available on the Public Health Agency website at the following address: <http://www.phac-aspc.gc.ca/fluwatch/index.html>. Ce rapport est disponible dans les deux langues officielles. Pour en recevoir un exemplaire dans l'autre langue chaque semaine, veuillez communiquer avec Estelle Arseneault, Division de l'immunisation et des infections respiratoires au (613) 998-8862.